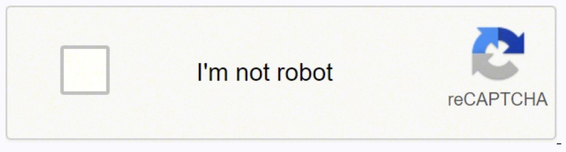

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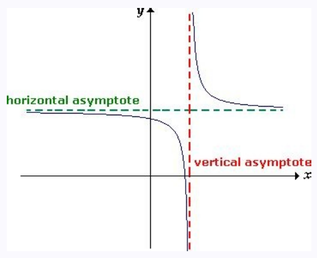
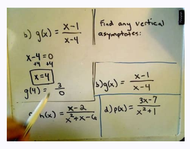
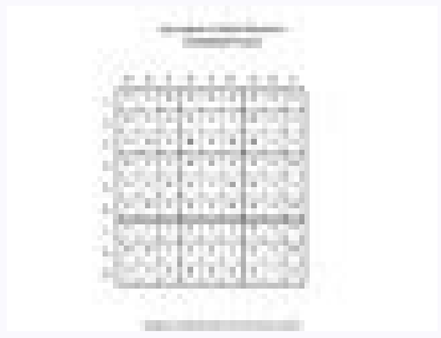
Asymptotes of rational functions worksheet pdf online







Honors Algebra 2 Graphing Radicals 5.6 – Notes

Writing Equations given the transformations:

f(x) = (Square root)

1. The parent function $f(x)=\sqrt{x}$ is reflected across the x-axis, stretched vertically by a factor of 4, and translated ~~1 unit up~~.

$f(x) = -4\sqrt{x} + 1$

2. The parent function $f(x)=\sqrt[3]{x}$ (Cubed root) is ~~stretched horizontally by a factor of 2~~, ~~reflected across the y-axis~~, and translated 3 units left

$f(x) = \sqrt[3]{-\frac{1}{2}(x+3)}$

*must include ( ) if you also have a "b" value

Graphing Radicals with transformation. Use your graphing calculator to plot points.

1. $f(x)=\sqrt{x+6}$ "shoot"

*Left 6
v: (-6, 0)

x	y
-7	error
-6	0
-5	1
-2	2
3	3

2. $f(x)=3\sqrt[3]{x}$ *Calc. may look like it has a gap but it doesn't

*Vertical stretch by 3
v: (0, 0)

x	y
-8	-6
-1	-3
0	0
1	3
8	6

"free-style swim"

You try!

3. $f(x)=-\sqrt{x}-3$

*reflect x-axis
*down 3
v: (0, -3)

x	y
0	-3
1	-4
4	-5
9	-6

"bowling"

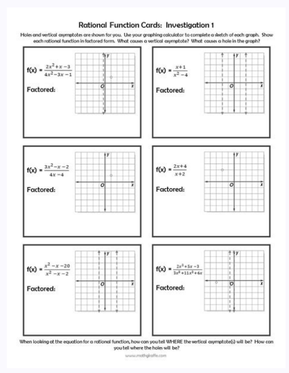
4. $f(x)=\sqrt[3]{x-2}+3$

*right 2
*up 3
v: (2, 3)

x	y
-6	1
1	2
2	3
3	4
10	5

"free-style swim"

*A reflection on a cubed root would turn it into "back-stroke swim"



f(x) = (2x - 3)/(x2 + 4) 1. How to find horizontal asymptote ?1) If degree of numerator > degree of denominatorthen the graph of y = f(x) will have no horizontal asymptote.2) If degree of numerator = degree of denominatorthen the graph of y = f(x) will have a horizontal asymptote at y = an/bm.3) Ifdegree of numerator < degree of denominatorthen the graph of y = f(x) will have a horizontal asymptote at y = 0 (i.e., the x-axis). Answer :f(x) = 1/(x + 6)Step 1 :In the given rational function, the denominator isx + 6Step 2 :Equate the denominator to zero and solve for x.x + 6 = 0x = - 6Step 3 :The equation of the vertical asymptote isx = - 62. f(x) = (x2 + 2x - 3)/(x2 - 5x + 6)3. Show Video Lesson Graphing Rational Functions, n > m There are different characteristics to look for when creating rational function graphs. Try the given examples, or type in your own problem and check your answer with the step-by-step explanations. With rational function graphs where the degree of the numerator function is greater than the degree of denominator function, there is no horizontal asymptote, but there may be an oblique asymptote. Thank you very much for your cooperation. Find the equation of vertical asymptote :1. In order to continue enjoying our site, we ask that you confirm your identity as a human. With rational function graphs where the degree of the numerator function is equal to the degree of denominator function, we can find a horizontal asymptote. Answer :f(x) = (2x - 3)/(x2 + 4)Step 1 :In the given rational function, the denominator isx2 + 4Step 2 :Equate the denominator to zero and solve for x.x2 + 4 = 0x2 = -4x = ±√-4x = ±2ix = 2i or x = -2i (Imaginary)Step 3 :When we equate the denominator to zero, we don't get real values for x.So, there is no vertical asymptote. Horizontal Asymptote :The horizontal line y = b is called a horizontal asymptote of the graph of y = f(x) if either The graph of y = f(x) will have at most one horizontal asymptote. Show Video Lesson Try the free Mathway calculator and problem solver below to practice various math topics. onlinemath4all.com The following diagrams show how to find the horizontal asymptotes of rational functions. How to recognize when a rational function has a horizontal asymptote, and how to find its equation. WORD PROBLEMSHCF and LCM word problemsWord problems on simple equations Word problems on linear equations Word problems on quadratic equationsAlgebra word problemsWord problems on trainsArea and perimeter word problemsWord problems on direct variation and inverse variation Word problems on unit priceWord problems on unit rate Word problems on comparing ratesConverting customary units word problems Converting metric units word problemsWord problems on simple interestWord problems on compound interestWord problems on types of angles Complementary and supplementary angles word problemsDouble facts word problemsTrigonometry word problemsPercentage word problems Profit and loss word problems Markup and markdown word problems Decimal word problemsWord problems on fractionsWord problems on mixed fractionsOne step equation word problemsLinear inequalities word problemsRatio and proportion word problemsTime and work word problemsWord problems on sets and Venn diagramsWord problems on agesPythagorean theorem word problemsPercent of a number word problemsWord problems on constant speedWord problems on average speed Word problems on sum of the angles of a triangle is 180 degreeOTHER TOPICS Profit and loss shortcutsPercentage shortcutsTimes table shortcutsTime, speed and distance shortcutsRatio and proportion shortcutsDomain and range of rational functionsDomain and range of rational functions with holesGraphing rational functionsGraphing rational functions with holesConverting repeating decimals in to fractionsDecimal representation of rational numbersFinding square root using long divisionL.C.M method to solve time and work problemsTranslating the word problems in to algebraic expressionsRemainder when 2 power 256 is divided by 17Remainder when 17 power 23 is divided by 16Sum of all three digit numbers divisible by 6Sum of all three digit numbers divisible by 7Sum of all three digit numbers divisible by 8Sum of all three digit numbers formed using 1, 3, 4Sum of all three four digit numbers formed with non zero digitsSum of all three four digit numbers formed using 0, 1, 2, 3Sum of all three four digit numbers formed using 1, 2, 5, 6 ©All rights reserved. Apart from the stuff given above, if you need any other stuff in math, please use our google custom search here. If you're seeing this message, it means we're having trouble loading external resources on our website. When the degree of the numerator is equal to or greater than that of the denominator, there are other techniques for graphing rational functions. Answer :f(x) = (2x - 3)/(x2 - 4)Step 1 :In the given rational function, the denominator isx2 - 4Step 2 :Equate the denominator to zero and solve for x.x2 - 4 = 0x2 - 22 = 0(x + 2)(x - 2) = 0x = -2 or x = 2Step 3 :The equations of two vertical asymptotes arex = -2 and x = 24. When graphing rational functions where the degree of the numerator function is less than the degree of denominator function, we know that y = 0 is a horizontal asymptote. Vertical Asymptote :The vertical line x = a is called a vertical asymptote of the graph of y = f(x) if How to find vertical asymptote ?The graph of y = f(x) will have vertical asymptotes at those values of x for which the denominator is equal to zero. A graph can have an infinite number of vertical asymptotes, but it can only have at most two horizontal asymptotes.Horizontal asymptotes describe the left and right-hand behavior of the graph.A graph will (almost) never touch a vertical asymptote; however, a graph may cross a horizontal asymptote. We welcome your feedback, comments and questions about this site or page. When the degree of the numerator is less than or greater than that of the denominator, there are other techniques for drawing rational function graphs. onlinemath4all.com Example 2 :f(x) = (x-4)/(-4x-16)Solution :Vertical asymptotes : -4x-16 = 0-4(x+4) = 0x = -4So, vertical asymptote is x = -4.Horizontal asymptotes :Comparing highest exponents,denominator = numerator Horizontal asymptote = Coefficient of x of numerator/Coefficient of x in the denominatory = -1/4So, horizontal asymptote is y = -1/4.Example 3 :f(x) = (x+4)/(-2x-6)Solution :Vertical asymptotes : -2x-6 = 0-2x = 6x = -3So, vertical asymptote is x = -3.Horizontal asymptotes :Comparing highest exponents,denominator = numerator Horizontal asymptote = Coefficient of x of numerator/Coefficient of x in the denominatory = -1/2So, horizontal asymptote is y = -1/2.Example 4 :f(x) = (x3-9x)/(3x2-6x-9)Solution :Vertical asymptotes : 3x2-6x-9 = 03(x2-2x-3) = 0(x-3)(x+1) = 0x = 3 and x = -1So, vertical asymptotes are x = 3 and x = -1.Horizontal asymptotes :Comparing highest exponents,numerator > denominatorSo, there is no horizontal asymptote.Example 5 :f(x) = (3x2-12x)/(x2-2x-3)Solution :Vertical asymptotes : x2-2x-3 = 0(x-3)(x+1) = 0x = 3 and x = -1 So, vertical asymptotes are x = 3 and x = -1.Horizontal asymptotes :Comparing highest exponents,numerator = denominatorcoefficient of x from the numerator/coefficient of x in the denominatory = 3/1y = 3So, the horizontal asymptote is y = 3.Example 6 :f(x) = (x3-16x)/(-4x2+4x+24)Solution :Vertical asymptotes : -4x2+4x+24 = 0-4(x2-x-6) = 0(x-3)(x+2) = 0x = 3 and x = -2Horizontal asymptotes :Comparing highest exponents,numerator > denominatorSo, there is no horizontal asymptote.Example 7 :f(x) = (x2+2x)/(-4x+8)Solution :Vertical asymptotes : -4x+8 = 0-4(x-2) = 0x = 2So, vertical asymptote is x = 2.Horizontal asymptotes :Comparing highest exponents,numerator > denominatorSo, there is no horizontal asymptote. Please submit your feedback or enquiries via our Feedback page. Graphing Rational Functions, n less than m There are different characteristics to look for when graphing rational functions. Answer :f(x) = (x2 + 2x - 3)/(x2 - 5x + 6)Step 1 :In the given rational function, the denominator isx2 - 5x + 6Step 2 :Equate the denominator to zero and solve for x. x2 - 5x + 6 = 0(x - 2)(x - 3) = 0x - 2 = 0 or x - 3 = 0x = 2 or x = 3Step 3 :The equations of two vertical asymptotes arex = 2 and x = 33. Scroll down the page for more examples and solutions on how to find horizontal asymptotes. Find the vertical and horizontal asymptotes of the function given below.Example 1 :f(x) = -4/(x2 - 3x)Solution :Vertical asymptotes : x2 - 3x = 0x(x-3) = 0x = 0 and x = 3So, the vertical asymptotes are x = 0 and x = 3.Horizontal asymptotes :Comparing highest exponents,denominator > numerator So, horizontal asymptote is at y = 0. Show Video Lesson Graphing Rational Functions, n = m There are different characteristics to look for when creating rational function graphs. f(x) = 1/(x + 6)2. f(x) = (2x - 3)/(x2 - 4)4. If you're behind a web filter, please make sure that the domains *.kastatic.org and *.kasandbox.org are unblocked. Kindly mail your feedback to v4formath@gmail.comWe always appreciate your feedback. It is found according to the following: How to find vertical and horizontal asymptotes of rational function ?

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